Claim Amendments

1. (Original) An osteogenic paste composition effective for the induction of new bone growth in a primate, comprising:

a resorbable paste carrier;

an osteogenic factor; and

a porous particulate mineral in an amount of at least 20% by volume of the composition, said amount being effective to provide a scaffold for bone ingrowth as the resorbable paste carrier is resorbed.

2. (Original) The composition of claim 1 which further comprises demineralized bone matrix.

3. (Original) The composition of claim 2 wherein the ratio of demineralized bone matrix to resorbable carrier is between about 1:4 and about 3:2 by weight.

4. (Original) The composition of claim 2 wherein the composition comprises 5-45% by weight resorbable carrier.

5. (Original) The composition of claim 1 wherein the resorbable carrier is flowable at temperatures above the body temperature of the mammal, but transitions to a non-flowable mass at or slightly above said body temperature.

6. (Currently Amended) The composition of claim 1 wherein the mineral is selected from the group consisting of bone particles, bioglass, tricalcium phosphate, ~~hydroxyapitite,~~ hydroxyapatite, corraline ~~hydroxyapitite,~~ hydroxyapatite, biocompatible ceramic and non-resorbable biocompatible organic polymer.

7. (Original) The composition of claim 1 wherein the mineral comprises tricalcium phosphate, biphasic calcium phosphate, or hydroxyapatite particles having an average particle diameter of about 0.050 to about 5.0 mm.

8. (Original) The composition of claim 1 wherein the mineral comprises mammalian bone particles having a particle size of about 0.050 to about 5.0 mm.

9. (Original) The composition of claim 1 wherein the mineral comprises cortical human bone particles having an average particle diameter of about 0.050 to about 5.0 mm.

10. (Original) The composition of claim 1 wherein the osteogenic factor comprises a bone morphogenic protein selected from BMP-2, BMP-4, BMP-6 or BMP-7, a LIM mineralization protein, or a nucleotide sequence encoding said bone morphogenic protein or LIM mineralization protein.

11. (Currently Amended) The composition of claim 1 further comprising one or more osteogenic enhancing factors selected from the group consisting of osteogenic progenitor cells, autographic bone marrow, allographic bone marrow, transforming growth factor-beta, fibroblast growth factor, ~~platlet~~ platelet derived growth factor, insulin-like growth factor, microglobulin-beta, antibiotics, antifungal agents, wetting agents, glycerol, steroids and non-steroidal anti-inflammatory compounds.

12. (Original) The composition of claim 1 wherein the mineral constitutes about 20% to about 80% by volume of the composition.

13. (Original) An osteogenic implant material effective for the induction of new bone growth in a mammal, comprising:

a resorbable paste carrier comprising gelatin, the resorbable carrier formulated to be flowable at temperatures above the body temperature of the mammal, and to transition to a non-flowable mass at said body temperature;

demineralized bone matrix;

an osteogenic factor; and

a particulate mineral having an average particle size of about 0.050 to about 5.0 mm, said mineral constituting at least 20% by volume of said composition.

14. (Original) The composition of claim 13 wherein the mineral constitutes about 20% to about 80% by volume of the composition.

15. (Original) The composition of claim 13 wherein the mineral comprises human bone particles.

16. (Original) The composition of claim 13 wherein the mineral comprises non-human bone particles, said particles having been treated to reduce their immunogenicity in humans.

17. (Original) The composition of claim 13 wherein the osteogenic factor is a bone morphogenic protein selected from BMP-2, BMP-4, BMP-6 and BMP-7, a LIM mineralization protein, or a nucleotide sequence encoding said bone morphogenic protein or LIM mineralization protein.

18. (Original) A method for inducing bone growth in a primate, comprising implanting in the primate a composition according to claim 1, at a site at which bone growth is desired.

19. (Original) The method of claim 18, wherein the site is in the spine of the primate.

20. (Original) The method of claim 19, which is a spinal fusion.

21. (Original) The method of claim 20, wherein the spinal fusion is an interbody spinal fusion.

22. (Original) The method of claim 20, which is a posterolateral spinal fusion.

23. (Original) The method of claim 19, wherein the primate is a human.

24. (Original) The method of claim 20, wherein the fusion includes a fusion between transverse processes of adjacent vertebrae.

25. (Original) A method of performing a spinal fusion in a human, comprising implanting between adjacent vertebrae to be fused an effective amount of a composition according to claim 1.

26. (Original) The method of claim 25, wherein the composition is implanted in combination with a load bearing device.

27. (Original) A method for inducing bone growth in a primate, comprising:

heating an effective amount of an osteogenic paste composition to a temperature at which it is flowable, said osteogenic implant material comprising a resorbable paste carrier that is flowable at temperatures above the body temperature of the primate, but which transitions to a non-flowable mass at or slightly above said body temperature; an osteogenic factor that stimulates osteoblasts and osteoclasts; and, a particulate mineral effective to provide a scaffold for bone ingrowth as the resorbable carrier is resorbed, said mineral constituting at least 20% by volume of the paste composition;

implanting said osteogenic paste composition at a site of desired new bone formation; and

cooling the osteogenic paste composition to a temperature sufficient to transition the osteogenic paste composition to a non-flowable mass.

28. (Original) The method of claim 27 wherein the implant material further comprises demineralized bone matrix.

29. (Original) The method of claim 27 wherein the primate is a human.